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filicinum had previously been found fossil by the author, also from near Fulda. Mr. Geheeb mentions still another fossil moss which was found in 1869, in the Schussenquelle, near Schussenried, Württemberg, by Apotheker Valet, and determined by Schimper as *Hypnum sarmentosum* Wahlenb., an arctic-alpine moss.

Nore.—Since writing the above I have asked Dr. G. N. Best to examine the Oelwein moss. To my surprise he found the bulk of what I sent to be *Hypnum revolvens* Sw., coming in between var. *typicum* and *Cossoni*. He also found bits of a Calliergon which appears to be *H. Richardsoni*. This difference in conclusions led me to float out a larger quantity of the moss, submitting a second lot of twelve packets to Dr. Best, with the result that he agreed with my first determination of that material. I had doubtless overlooked the presence of *Hypnum revolvens*, and the Calliergon, bits of both of which species are scattered through the mass of *H. fluitans*.

Prof. Myers also entrusted to me a very small bit fossil moss, taken eighteen feet under ground, also from under Kansas Drift, from the excavation under the Iowa City High School. This Dr. Best finds to be nearest to *Hypnum fluitans glaciale* Ren.

It thus appears that Iowa has furnished at least four fossil mosses. The material from Oelwein is mostly *Hypnum fluitans brachydictyon* Ren., with a little *Hypnum revolvens* Sw., and *Hypnum Richardsoni*; the Iowa City moss is *Hypnum fluitans glaciale*,
Winona, Minn.

SOME MOSS SOCIETIES.

BY A. J. GROUT.

By the above title I do not mean to designate any generalizations in the phytogeography of mosses, but merely to record a few observations on species associated together in different groupings under different conditions.

I was led to take up this topic by poor health, which prevented my walking more than two or three miles daily. To entertain myself I selected the various places mentioned in this account, and set myself to find all the mosses growing in each spot under conditions as nearly similar as possible. For instance, when collecting on the stone wall I carefully avoided plants growing on the soil at the base of the wall. I have been greatly surprised by the results, as I have collected several species for the first time, in localities that have been familiar to me for years, and I have discovered a great extension of range in at least one case (*Fabroleskea*).

I have also found several plants on unusual substrata, e. g., *Grimmia apocarpa* and *Hedwigia* on the old roof, and *Ulota crispa* on the stone wall. In this last case Dr. Best suggests that scraps of bark, etc., from the trees overhead furnished the material suitable for the first stages in the development of the plants.

Perhaps the most interesting collecting place was the cut in Brooklyn Heights, where the Wall St. Ferry cars pass up along Montague St., from the water level to the level of the Heights. The ground here is apparently springy, and in the chinks between the stones I found five or six species, the

first two in fruit: *Funaria hygrometrica*, *Leptobryum pyriforme*, *Bryum caespitium*, and another *Bryum* which may be a variety of this but is probably a different species, *Barbula unguiculata*, and *Amblystegium Kochii*, B. & S. The first two of this list with *Ceratodon* I had previously collected on the brick foundations of my Brooklyn (Flatbush) house. The last was one of the greatest surprises of the season.

In May of this season I collected *Bruchia Sullivantii* Aust., for the first time. It grew in a sandy field in Lawrence, L. I., just beyond the city limits. I was interested to note the other plants growing associated with it so as to know where to look for more. Growing with it, or near it under similar conditions were *Pleuridium subulatum* (L.) Rabenh., *Weisia viridula*, (L.) Hedw., *Ceratodon purpureus*, *Ditrichum pallidum*, *Catharinea angustata*, *Bryum caespitium*, *Polytrichum commune*, and *Mnium sylvaticum*. Some of these evidently thrive during the wet weather of early spring and others during the dry weather. The soil was sandy with a little clay, recently (within a year or two) plowed. The daisy, *Antennaria* sp., and the creeping blackberry were accompanying flowering plants.

An old pear tree in my father's yard, from which I have eaten fruit for thirty years, yielded *Pylaisia Schimperii* R. & C. (*P. intricata*), *Orthotrichum strangulatum* Sulliv., *O. speciosum*, Nees., *O. Ohioense*, S. & L., *O. obtusifolium*, Schrad., *O. sordidum*, S. & L., *Fabroleskea Austinii* (Sulliv.) Best (Det. Dr. Best), *Ulota* (*Weissia*) *crispa*, *U. coarctata*, *Amblystegium adnatum* on the bark of the tree from 3-7 feet from the ground. In a knot hole grew *Brachythecium salebrosum*, and at the base of the tree *Amblystegium serpens*. Besides the mosses there was a minute hepatic in the bark growing mosses.

From an old roof in the village of Williamsville in the same town, I collected *Ulota* (*Weissia*) *crispa*, *Grimmia apocarpa*, *Hedwigia albicans*, *Platygyrium* (*Entodon*) *repens* with flagella; *Ceratodon purpureus*, *Brachythecium oxycladon* and also a form with secund leaves, *Hypnum reptile*, *H. Haldanianum*, *H. fertile*, and *H. Schreberi*. I find *Dicranum Bonjeani* De Not., to be frequently on old roofs; indeed it is the only place I have ever found the typical form, but I have never found it fruiting. It did not occur on the roof from which the above named collection was taken.

On an old log, in deep moist woods, at an altitude of 1300 ft. I found *Georgia pellucida*, *Dicranum scoparium*, *D. viride*, *D. flagellare*, *Mnium ciliare*, *Thuidium recognitum*, *Hylocomium proliferum*, *H. Pyrenaicum*, *Hypnum Haldanianum*, *H. hispidulum*, *H. reptile*, *H. Schreberi*, and an undeterminable species of *Hypnum*, *Plagiothecium denticulatum*, *P. turfaceum*, *Raphidostegium recurvans*, *Brachythecium oxycladon*, *Cephalozia* sp., and two other hepatics.

On about four rods of old stone wall under two great maples, and on the north side of the wall, I found *Dicranum longifolium*, *Dicranum* sp., *Ceratodon purpureus*, *Grimmia apocarpa*, *Hedwigia*, *Ulota Americana*, *U. crispa* forma, *Bryum caespitium*, *Mnium sylvaticum*, *Amblystegium adnatum*, *Hypnum reptile*, *Plagiothecium denticulatum*, *Platygyrium*

repens with flagella, *Brachythecium populeum*, *B. velutinum*, *Porella platyphylla* (L.) Lindb., *Radula complanata* (L.) Dum., *Cephalozia* sp.

All of the studies except the first two were made in the town of New-fane, Vermont. The names are the same as those in my Vermont Mosses unless the authorities are given.

BUXBAUMIA APHYLLA L.

In the September BRYOLOGIST Mr. Chamberlain mentions the finding of *Buxbaumia aphylla* on the Maryland bank of the Potomac, near Washington, D. C. I also have this species from the vicinity of Washington. Among a lot of fresh mosses collected for me by a young friend, on December 1st, 1900, were seven or eight plants of *Buxbaumia aphylla*, with capsules not quite mature. They had been found on the ground, in woods near Capitol View, Md.—about ten miles north of the city.

MARY F. MILLER,
Washington, D. C.

DR. BEST'S REVISION OF LESKEA.

In the Bulletin of the Torrey Botanical Club for September, 1903, Dr. G. N. Best publishes a "Revision of the North American Species of *Leskea*," which is a notable contribution to the literature of North American bryology. Dr. Best makes two new species and two new varieties. He also publishes two other varieties not new but with new names. These descriptions we give below in full.

Dr. Best describes two other species not included in the Manual of Lesq. and James, *L. gracilescens* Hedw. and *L. tectorum* (A. Braun) Lindb. We print also his notes on these two species but not his descriptions. As a help to the understanding of the relationship between the new and old species we publish Dr. Best's Key. The text is accompanied by two excellent plates drawn by Miss Alexandrina Taylor.

It is a pleasure to see a work like Dr. Best's; it is conservative, but not too much so. New species are not founded on mere scraps, à la Kindberg (and some other European writers that might be mentioned), but are founded on plants representative of a large series of widely distributed forms. In nomenclature he recognizes the claims of usage, and also that names are made for science and not science for names.

If Dr. Best were to accept the principles lately laid down and followed by our foremost fern students it would not be *Leskea* at all. Heaven only knows what it might be, but Dr. Best says "The usually accepted type of *Leskea* is *L. polycarpa*, and since both the name and the type bear the sanction of all recent authorities, the author of the Revision feels constrained likewise to accept them."

A. J. GROUT.